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(54) METHOD FOR MANUFACTURING HONEYCOMB FILTER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a method for manufacturing a honeycomb filter satisfactorily by preventing a masking material adhered to each of both end surfaces of a porous ceramic member from being broken, decomposed and peeled off easily halfway when the honeycomb filter is manufactured.

SOLUTION: This method for manufacturing the honeycomb filter comprises manufacturing the porous ceramic member, adhering the masking material having an adhesive layer formed on a base film to both end surfaces of the porous ceramic member, applying adhesive paste onto the sides of the masking material-adhered porous ceramic member, repeating a step to stack another ceramic member on the adhesive paste to set up a stacked ceramic body, cutting a part of the stacked ceramic body to prepare a ceramic block, forming a sealing material layer on the outer peripheral part of the ceramic block and then peeling off the masking material.

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CLAIMS

[Claim(s)]

[Claim 1] While two or more porosity ceramic members of the prism configuration by which many through tubes separated the septum and were installed in the longitudinal direction side by side band together through a glue line and constitute a hollow clay building block It is the manufacture approach of the honeycomb filter constituted so that the septum by which coating of the periphery section is carried out by the sealant layer, and it separates said through tube might function as a filter for particle uptake. After manufacturing said porosity ceramic member, the degree of hardness 50-150 degrees, The masking material attachment process that a binder layer is formed for heat-resistant temperature on a base material film 120 degrees C or more, and the adhesion sticks the masking material of 500 - 2000gf / 19mm width of face on the both-ends side of said porosity ceramic member, Apply an adhesives paste to the side face of a porosity ceramic member in which said masking material was stuck, and the process which carries out the laminating of other porosity ceramic members after said adhesives paste is repeated. The ceramic layered product making process which finishes setting up a ceramic layered product, and the hollow clay building block making process which cuts said a part of ceramic layered product, and produces said hollow clay building block, The manufacture approach of the honeycomb filter characterized by including the masking material exfoliation process of exfoliating said masking material after forming a sealant layer in the periphery section of said hollow clay building block.

[Claim 2] A base material film is the manufacture approach of the honeycomb filter according to claim 1 which consists of a PET film.

[Claim 3] The thickness of masking material is the manufacture approach of the honeycomb filter according to claim 1 or 2 which is 10-500 micrometers.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the manufacture approach of the honeycomb filter used as a filter from which the particulate in the exhaust gas discharged by the internal combustion engine etc. is removed.

[0002]

[Description of the Prior Art] It poses a problem that the particulate contained in the exhaust gas discharged by internal combustion engines, such as cars, such as an automobile, a bus, and a truck, and a construction equipment, does damage to an environment or the body recently. The honeycomb filter which carries out uptake of the particulate in exhaust gas, and purifies exhaust gas by ** which passes a porosity ceramic for this exhaust gas is proposed variously.

[0003] Usually two or more porosity ceramic members 30 which consist of silicon carbide etc. like the honeycomb filter 10 shown in drawing 1 R> 1 band together, such a honeycomb filter constitutes a hollow clay building block 15, and the sealant layer 12 is formed in the perimeter of this hollow clay building block 15. Moreover, as this porosity ceramic member 30 was shown in drawing 2, many through tubes 31 are installed in a longitudinal direction side by side, and the septum 33 which separates through tube 31 comrades functions as a filter.

[0004] That is, as the through tube 31 formed in the porosity ceramic member 30 was shown in drawing 2 (b), the exhaust gas with which either the entry side of exhaust gas or the edge of an outlet side flowed into ***** and the through tube 31 of 1 with the filler 32 flows out of other through tubes 31, after passing the septum 33 which surely separates a through tube 31.

[0005] In an exhaust gas purge, the honeycomb filter 10 of such a configuration is installed in an internal combustion engine's flueway, in case the particulate in the exhaust gas discharged by the internal combustion engine passes this honeycomb filter 10, it is caught by the septum 33, and exhaust gas is purified.

[0006] In case such a honeycomb filter 10 is manufactured, the mixed constituent which contains a solvent, a binder, etc. first other than the ceramic particle which is a raw material is prepared, extrusion molding etc. is performed using this mixed constituent, and a ceramic Plastic solid is produced. And the porosity ceramic member 30 is manufactured by performing each processing of desiccation, cleaning, and baking to this ceramic Plastic solid.

[0007] Next, by carrying out the laminating of this porosity ceramic member 30 through the adhesives paste used as a glue line 14, it finishes setting up a ceramic layered product, and after desiccation, it cuts in a predetermined configuration and a hollow clay building block 15 is produced. And the honeycomb filter 10 was manufactured by forming the sealant layer 13 in the periphery section of this hollow clay building block 15.

[0008] However, when it was going to manufacture the honeycomb filter 10 by such approach, in the setting-up process of the above-mentioned ceramic layered product, the adhesives paste applied to the side face of the porosity ceramic member 30 might adhere to the part by which the flash and the through tube 31 are formed in a part for the edge surface part of the porosity ceramic member 30, and might close the through tube 31.

[0009] Moreover, there was a case where it generated also in the process in which the same problem forms the sealant layer 13. That is, when the sealant paste used as the sealant layer 13 was applied to the periphery section of a hollow clay building block 15 and the sealant paste layer was formed, it might adhere to the part in which the above-mentioned sealant paste overflows into the end face of a hollow clay building block 15, and the

through tube 31 is formed, and the through tube 31 might be closed. Thus, if the above-mentioned adhesives paste and the above-mentioned sealant paste close a through tube 31, a through tube 31 will become blinding and the function as a filter of a honeycomb filter will fall.

[0010] Then, although the gummed tape and the vinyl tape were stuck on the both-ends side of the porosity ceramic member 30 and the prevention Fig. of the blinding of such a through tube was, since such a gummed tape and a vinyl tape were a thing inferior to the thermal resistance and endurance, they might carry out breakage, decomposition, exfoliation, etc. in the manufacture process of a honeycomb filter 10.

[0011]

[Problem(s) to be Solved by the Invention] This invention aims at offering the manufacture approach of manufacturing the honeycomb filter which has a good property, without a sealant etc. invading into the through tube of a honeycomb filter, since the masking material which it was made in order to solve these problems, and was stuck on the both-ends side of a porosity ceramic member is in the middle of manufacture of a honeycomb filter and does not damage, decompose and exfoliate easily.

[0012]

[Means for Solving the Problem] While two or more porosity ceramic members of the prism configuration by which many through tubes separated the septum and were installed in the longitudinal direction side by side band together through a glue line and constitute a hollow clay building block, this invention It is the manufacture approach of the honeycomb filter constituted so that the septum by which coating of the periphery section is carried out by the sealant, and it separates the above-mentioned through tube might function as a filter for particle uptake. After manufacturing the above-mentioned porosity ceramic member, the degree of hardness 50-150 degrees, The masking material attachment process that a binder layer is formed for heat-resistant temperature on a base material film 120 degrees C or more, and the adhesion sticks the masking material of 500 - 2000gf / 19mm width of face on the both-ends side of the above-mentioned porosity ceramic member, Apply an adhesives paste to the side face of a porosity ceramic member in which the above-mentioned masking material was stuck, and the process which carries out the laminating of other porosity ceramic members after the above-mentioned adhesives paste is repeated. The ceramic layered product making process which finishes setting up a ceramic layered product, and the hollow clay building block making process which cuts a part of above-mentioned ceramic layered product, and produces the above-mentioned hollow clay building block, After forming a sealant in the periphery section of the above-mentioned hollow clay building block, it is the manufacture approach of the honeycomb filter characterized by including the masking material exfoliation process of exfoliating the above-mentioned masking material. Hereafter, the manufacture approach of the honeycomb filter of this invention is explained.

[0013]

[Embodiment of the Invention] While two or more porosity ceramic members of the prism configuration which many through tubes separated the septum and was installed in the longitudinal direction side by side band together through a glue line and constitute a hollow clay building block, the manufacture approach of the honeycomb filter of this invention It is the manufacture approach of the honeycomb filter constituted so that the septum by which coating of the periphery section is carried out by the sealant, and it separates the above-mentioned through tube might function as a filter for particle uptake. After manufacturing the above-mentioned porosity ceramic member, the degree of hardness 50-150 degrees, The masking material attachment process that a binder layer is formed for heat-resistant temperature on a base material film 120 degrees C or more, and the adhesion sticks the masking material of 500 - 2000gf / 19mm width of face on the both-ends side of the above-mentioned porosity ceramic member, Apply an adhesives paste to the side face of a porosity ceramic member in which the above-mentioned masking material was stuck, and the process which carries out the laminating of other porosity ceramic members after the above-mentioned adhesives paste is repeated. The ceramic layered product making process which finishes setting up a ceramic layered product, and the hollow clay building block making process which cuts a part of above-mentioned ceramic layered product, and produces the above-mentioned hollow clay building block, After forming a sealant in the periphery section of the above-mentioned hollow clay building block, it is characterized by including the masking material exfoliation process of exfoliating the above-mentioned masking material.

[0014] In the manufacture approach of the honeycomb filter of this invention, first, although a porosity ceramic member is manufactured, since it is as having explained the manufacture approach in the above-mentioned Prior

art, the detailed explanation is omitted here. Moreover, although especially the ceramic that is the raw material of a porosity ceramic member is not limited but various ceramics are mentioned, in these, thermal resistance is large, it excels in a mechanical property and large silicon carbide is desirable [thermal conductivity].

[0015] As for the above-mentioned porosity ceramic member, it is desirable that it is what mean particle diameter becomes from the ceramic crystal which is 2-150 micrometers, and its 10-70 micrometers are more desirable. In order for the pore diameter of the pore which exists that the mean particle diameter of the above-mentioned ceramic crystal is less than 2 micrometers in the interior of a porosity ceramic member to become small too much and to start blinding immediately, functioning as a filter becomes difficult. On the other hand, when the mean particle diameter of the above-mentioned ceramic crystal exceeds 150 micrometers, the pore diameter of the pore which exists in the interior becomes large too much, and there is a possibility that the reinforcement of a porosity ceramic member may fall. Moreover, it is not so easy to manufacture the porosity ceramic member which has the open pore of a predetermined rate and has the ceramic crystal that mean particle diameter exceeds 150 micrometers itself.

[0016] Next, the masking material by which the binder layer was formed on the base material film is stuck on the both-ends side of the porosity ceramic member which carried out [above-mentioned] manufacture.

[0017] Masking material is also cut by the configuration of the cut part, without being torn to pieces, separating or being extended too much in the process which performs cutting to the ceramic layered product mentioned later, since the degree of hardness of the above-mentioned base material film is 50-150 degrees. It is not cut by the configuration same since the base material film is too soft in the above-mentioned degree of hardness being less than 50 degrees, when cutting is performed to a ceramic layered product as the cut part, but masking material becomes obstructive [the formation process of elongation and the sealant layer mentioned later], or un-arranging [of the masking material of the part which should be carried out a seal being torn to pieces and lost] arises. On the other hand, if the above-mentioned degree of hardness exceeds 150 degrees, since it will become hard too much, it cannot stick on the end face in which some irregularity was formed firmly, but becomes easy to separate.

[0018] Moreover, since the heat-resistant temperature of the above-mentioned base material film is 120 degrees C or more, it deteriorates at the desiccation process of the sealant layer mentioned later, or is not decomposed. There is a possibility that the above-mentioned base material film may decompose that the above-mentioned heat-resistant temperature is less than 120 degrees C in a next desiccation process etc. As for the above-mentioned heat-resistant temperature, it is desirable that it is 150 degrees C or more.

[0019] It is not limited especially as the above-mentioned binder, for example, rubber system binders, such as a polyisobutylene, SBR, isobutylene isoprene rubber, and chloroprene rubber, other acrylic binders, etc. can be mentioned.

[0020] Since the adhesion of the above-mentioned masking material which applied such a binder is 500 - 2000gf / 19mm width of face, it is the process which exfoliates masking material using the exfoliation sheet mentioned later, and it can exfoliate easily, and is in the middle of manufacture of a honeycomb filter, and does not exfoliate. When the above-mentioned adhesion is under 500gf(s) / 19mm width of face, the adhesion is insufficient, it is in the middle of manufacture of a honeycomb filter, and the above-mentioned masking material may exfoliate. On the other hand, if the above-mentioned adhesion exceeds 2000gf(s) / 19mm width of face, it will become difficult at the exfoliation process of next masking material to exfoliate the above-mentioned masking material completely. As for the above-mentioned adhesion, it is desirable that they are 1000 - 1500gf / 19mm width of face.

[0021] As the above-mentioned base material film, it is desirable that it is a resin system film. thermal resistance and endurance -- excelling -- each above-mentioned property -- ***** -- it is because things are made. Moreover, in such a resin system film, it is desirable that it is polyester film and it is desirable especially that it is a PET film. It is because each property mentioned above can be fulfilled and it excels in thermal resistance and endurance especially.

[0022] As for the thickness of masking material it is thin from such a base material film and a binder layer, it is desirable that it is 10-500 micrometers. The reinforcement will fall that thickness is less than 10 micrometers, and it will damage easily. On the other hand, if thickness exceeds 500 micrometers, a degree of hardness becomes high, and it is dealt with, and is inferior to a sex, and since it is hard to follow the configuration of an end face and becomes it as mentioned above, it will become easy to separate. As for the thickness of the above-

mentioned masking material, it is more desirable that it is 10-100 micrometers.

[0023] It is not limited especially as an approach of sticking the above-mentioned masking material on the both-ends side of the above-mentioned porosity ceramic member, for example, masking material is cut the shape of an end face and isomorphism of a porosity ceramic member beforehand, and you may stick automatically using a machine arm etc., and may stick by hand. When productivity is taken into consideration, the approach of sticking automatically using a machine arm etc. is desirable.

[0024] Next, an adhesives paste is applied to the side face of a porosity ceramic member in which the above-mentioned masking material was stuck, the process which carries out the laminating of other porosity ceramic members after the above-mentioned adhesives paste is repeated, and the ceramic layered product making process which finishes setting up a ceramic layered product is performed.

[0025] In this ceramic layered product making process, as shown in drawing 3, a cross section uses the brush, a squeegee, a roll, etc. for two side faces 30a and 30b that the porosity ceramic member 30 bottom laid in the condition of having inclined aslant, on the base 60 constituted by the V character configuration was turned to, prints the above-mentioned adhesives paste on them, and forms the adhesives paste layer 61 of predetermined thickness in them.

[0026] Next, the laminating of other porosity ceramic members 30 is carried out on this adhesives paste layer 61. And after forming the adhesives paste layer 61 in the side face of such a porosity ceramic member 30, it carries out by repeating the process which carries out the laminating of other porosity ceramic members 30, and the prismatic form ceramic layered product of predetermined magnitude is produced.

[0027] What will not be limited as the above-mentioned adhesives paste especially if it has thermal resistance, for example, contains an organic binder, an inorganic binder, an inorganic fiber, and an inorganic particle can be mentioned. The adhesives paste which consists of such a presentation becomes the thing excellent also in thermal conductivity while familiarity by the porosity ceramic member is well excellent in bond strength.

[0028] As the above-mentioned organic binder, polyvinyl alcohol, methyl cellulose, ethyl cellulose, a carboxy cellulose, etc. are mentioned, for example. These may be used independently and may use two or more sorts together. In the above-mentioned organic binder, a carboxy cellulose is desirable.

[0029] As the above-mentioned inorganic binder, a silica sol, alumina sol, etc. are mentioned, for example. These may be used independently and may use two or more sorts together. In the above-mentioned inorganic binder, a silica sol is desirable.

[0030] As the above-mentioned inorganic fiber, ceramic fiber, such as silica alumina, a mullite, an alumina, and a silica, etc. is mentioned, for example. These may be used independently and may use two or more sorts together. In the above-mentioned inorganic fiber, a silica alumina fiber is desirable.

[0031] As the above-mentioned inorganic particle, carbide, a nitride, etc. are mentioned and, specifically, inorganic powder or a whisker etc. which consists of silicon carbide, silicon nitride, boron nitride, etc. is mentioned, for example. These may be used independently and may use two or more sorts together. In the above-mentioned inorganic particle, the silicon carbide which is excellent in thermal conductivity is desirable.

[0032] During this adhesives paste, an adhesives paste layer is made flexible, and in order to make it easy to give a fluidity and to apply, solvents, such as about 35 - 65% of the weight of moisture of AUW, and other acetones, alcohol, etc. are about contained other than the above-mentioned organic binder, the inorganic binder, the inorganic fiber, and the inorganic particle. The viscosity of this adhesives paste has desirable 15 - 25 Pa-s (10,000-20,000cps (cP)).

[0033] It is not limited especially as an approach of making this adhesives paste adhering to the side face of a porosity ceramic member, for example, an adhesives paste is conveyed using a tube etc., the lump of an adhesives paste is made to flow out from the above-mentioned tube, and the approach of making it adhere to the side face of a porosity ceramic member etc. is mentioned.

[0034] Next, after heating on 50-150 degrees C and the conditions of 1 hour, drying and stiffening the above-mentioned adhesives paste layer and making into a glue line the ceramic layered product which carried out in this way and was produced, a part of above-mentioned ceramic layered product is cut, and the hollow clay building block making process which produces the above-mentioned hollow clay building block is performed.

[0035] The approach which is not limited especially as an approach of cutting a part of above-mentioned ceramic layered product, for example, cuts the periphery section of the above-mentioned ceramic layered product using a diamond cutter etc. can be mentioned. The masking material pasted up on the cross section of

the above-mentioned ceramic layered product at this time is cut by the same configuration as a cutting part, without the masking material of a cutting part extending, tearing to pieces or separating, since it has the property mentioned above. Therefore, a sealant paste can prevent invading into the through tube of a porosity ceramic member with the formation process of the sealant layer mentioned later.

[0036] Next, the periphery section of the hollow clay building block which carried out in this way and was produced is made to apply and dry a sealant paste, a sealant layer is formed, and a honeycomb filter is produced.

[0037] The paste which is not limited especially as the above-mentioned sealant paste, for example, consists of the same presentation as the above-mentioned adhesives paste can be mentioned.

[0038] Moreover, it is not limited especially as an approach of forming the above-mentioned sealant layer, for example, the above-mentioned hollow clay building block is supported to revolve and rotated in the direction of a revolving shaft, and the lump of the above-mentioned sealant paste is made to adhere to the periphery section of a revolving hollow clay building block like the case where the above-mentioned glue line is formed, using a tube etc. And a sealant paste can be extended using plate-like part material etc., and the approach of forming a sealant paste layer can be mentioned. Although a sealant paste may adhere to an end face at this time, since masking material is stuck on the end face, a sealant paste does not invade into the through tube of a porosity ceramic member by this invention. Then, although moisture is evaporated and being considered as a sealant layer for example, by making it dry at the temperature of 120 degrees C or more, since it has the thermal resistance of 120 degrees C or more, at this desiccation process, the masking material used by this invention becomes soft too much, and it is shrunken or it does not decompose.

[0039] Next, the manufacture approach of the honeycomb filter of this invention is ended by performing the masking material exfoliation process of exfoliating the above-mentioned masking material currently stuck on the both-ends side of the honeycomb filter which carried out in this way and was produced.

[0040] It is not limited especially as an approach of exfoliating the above-mentioned masking material. For example, the sheet for exfoliation which applied the binder which has adhesion stronger than the adhesion of the above-mentioned masking material By pressing against the end face of the above-mentioned honeycomb filter, pasting up the above-mentioned masking material on the above-mentioned sheet for exfoliation, and pulling apart the above-mentioned sheet for exfoliation after that Although the approach of exfoliating manually using an approach, a knife, a cutter, etc. which make two or more above-mentioned masking material exfoliate from the end face of the above-mentioned honeycomb filter etc. can be mentioned, the approach using the sheet for exfoliation is desirable.

[0041] As a sheet for exfoliation which applied the binder which has adhesion stronger than the adhesion of the above-mentioned masking material, what applied the rubber system binder to polyester film can be mentioned, for example.

[0042] As for the adhesion of the above-mentioned sheet for exfoliation, it is desirable that it is 3000 - 8000g/25mm width of face. Adhesion is inadequate in adhesion being under 3000g/25mm width of face, and masking material may be unable to be completely exfoliated from the end face of a honeycomb filter. On the other hand, since adhesion is too strong when adhesion exceeds 8000g/25mm width of face, the sheet for exfoliation which has sufficient adhesion for it to be inferior to handling nature, and exfoliate masking material, and has the adhesion beyond this causes the jump of a manufacturing cost. In addition, although the above-mentioned masking material which has the adhesion mentioned above does not exfoliate easily according to the heat or external factor in the middle of manufacture of a honeycomb filter, it can exfoliate from the end face of a honeycomb filter easily with the above-mentioned sheet for exfoliation which has adhesion stronger than the above-mentioned masking material.

[0043] Moreover, although the configuration of the above-mentioned sheet for exfoliation can mention the thing of the end face of a honeycomb filter, and configurations of arbitration, such as the shape of the shape of abbreviation isomorphism, and a rectangle, it is desirable that it is what can cover the end face of a honeycomb filter completely as the size. It is because the masking material stuck all over the abbreviation for the end face of a honeycomb filter can be pasted up completely.

[0044] Although it is not limited especially as an approach of pressing such a sheet for exfoliation against the end face of a honeycomb filter but can press by the approach of arbitration, the approach of rolling a roller along with the end face of a honeycomb filter is desirable. It is because the include angle which a roller and the

end face of a honeycomb filter accomplish is always fixed, so the sheet for exfoliation can be pressed against the end face of a honeycomb filter by uniform thrust.

[0045] Although the diameter of the above-mentioned roller is suitably adjusted according to the diameter of the end face of the honeycomb filter which is the object to press, it is desirable that it is about 50-200mm. Rolling to the other end which faced the roller across the core from the end section of the end face of a honeycomb filter as a diameter is less than 50mm takes time amount, and the fall of productivity is caused. On the other hand, if a diameter exceeds 200mm, it will become difficult to press the sheet for exfoliation against the end face of a honeycomb filter by uniform press.

[0046] Moreover, as for especially the width of face of the above-mentioned roller, it is desirable to be adjusted so that it may not be limited but may become somewhat larger than the diameter of the end face of a honeycomb filter. It is because the count which rolls the above-mentioned roller along with the end face of a honeycomb filter can be carried out only at once.

[0047] Moreover, as for the front face of the above-mentioned roller at least, it is desirable that it is the elastic body which has the degree of hardness of 40-90 degrees. When the sheet for exfoliation is pressed against the end face of a honeycomb filter using the above-mentioned roller, it is for preventing breakage of the end face of the sheet for exfoliation, masking material, and a honeycomb filter.

[0048] As for the above-mentioned elastic body, it is desirable to be formed by the thickness of at least 5mm from the front face of the above-mentioned roller. When a roller is pressed against the end face of a honeycomb filter as the thickness of an elastic body is less than 5mm, the above-mentioned elastic body deforms, press starts even the elastic body agensis part of a roller, and there is a possibility that the end face of the sheet for exfoliation, masking material, and a honeycomb filter may be damaged. In addition, since it is "even if few", the above-mentioned whole roller may consist of the above-mentioned elastic body.

[0049] As the above-mentioned elastic body, it is desirable that they are urethane system foamed rubber or chloroprene system sponge rubber. When it has a moderate degree of hardness and the sheet for exfoliation is pressed against the end face of a honeycomb filter, it is because the part in contact with the end face of a honeycomb filter can deform moderately and the sheet for exfoliation and an adhesion sheet can be stuck certainly.

[0050] Moreover, as the above-mentioned elastic body, it is most desirable that it is neoprene sponge rubber. When it has 50 degrees and a suitable degree of hardness and presses against the end face of a honeycomb filter, it is because the above-mentioned neoprene sponge rubber which does not damage the end face of the sheet for exfoliation, masking material, and a honeycomb filter, and contacts the end face of a honeycomb filter can deform moderately and the whole masking material can be certainly stuck on the sheet for exfoliation.

Moreover, it excels also in the workability.

[0051] As an example of other elastic bodies, plastics foam, such as elastomers, such as synthetic rubber and polyisobutylenes, such as styrene-butadiene rubber, butadiene rubber, polyisoprene rubber, chloroprene rubber, polyurethane rubber, and silicone rubber, and polyethylene, foaming polyurethane, form polystyrene, polyethylene foam, and polypropylene foam, other natural rubber, sponge rubber, etc. can be mentioned, for example.

[0052] The masking material stuck on it since the masking material excellent in thermal resistance and endurance was stuck on the both-ends side of a porosity ceramic member which manufactured the manufacture approach of the honeycomb filter of this invention is in the middle of manufacture of a honeycomb filter as explained above, and the honeycomb filter which has a good property can be manufactured easily, without not damaging, decomposing and exfoliating, consequently a sealant etc. invading into the through tube of a honeycomb filter.

[0053]

[Example] Although an example is hung up over below and this invention is explained to it in more detail, this invention is not limited only to these examples.

[0054] After adding and kneading an organic binder, water, etc. to example 1 silicon-carbide powder, the average pore diameter as shown in drawing 2 R> 2 manufactured the porosity ceramic member whose 31 thickness /of a septum the number of cels is [cm] 0.3mm in 2 by 1-40 micrometers by performing extrusion molding, and producing the generation form of a honeycomb configuration, then performing desiccation, cleaning, and baking.

[0055] Next, the masking material (NITTO DENKO [CORP.] make: No.315) which consists of a PET film which applied the thermosetting rubber system binder as a binder was stuck on the both-ends side of the above-mentioned porosity ceramic member. In addition, for the degree of hardness, 110 degrees and heat-resistant temperature were [150 degrees C and the adhesion of the above-mentioned masking material] 1200g/19mm width of face.

[0056] Next, after having carried out a large number union of the above-mentioned porosity ceramic member using the heat-resistant adhesives containing an inorganic fiber, an inorganic particle, etc., having produced the ceramic layered product, then cutting using the diamond cutter and producing a hollow clay building block, the honeycomb filter of the shape of a cylindrical shape as shown in drawing 1 $R > 1$ was manufactured by forming in the periphery section the sealant which consists of the same component as the above-mentioned adhesives, and drying at 130 degrees C.

[0057] And the polyester film (Scotch-whisky company make: No.859) which applied the rubber system binder was pressed against the end face of the above-mentioned honeycomb filter as a sheet for exfoliation, the above-mentioned masking material was pasted up on the above-mentioned sheet for exfoliation, and the above-mentioned masking material was made to exfoliate from the end face of a honeycomb filter by pulling apart the above-mentioned sheet for exfoliation from the end face of a honeycomb filter. In addition, the adhesion of this sheet for exfoliation was 5000gf(s) / 25mm width of face, and when it pressed this sheet for exfoliation against the end face of a honeycomb filter, it used the roller with which neoprene rubber was formed in that front face.

[0058] In this example 1, the masking material stuck on the porosity ceramic member was cut by the cut configuration and the same configuration, without having been torn to pieces extended also with the above-mentioned hollow clay building block making process, or exfoliating. Moreover, it did not decompose [deterioration or] in the desiccation process. Furthermore, it exfoliated easily also at the exfoliation process with the exfoliation sheet. The honeycomb filter which has a good property was able to be manufactured. Moreover, when the condition of the end face of the manufactured honeycomb filter was observed visually, there was no through tube which blinding has generated.

[0059] The masking material stuck on the both-ends side of an example of comparison 1 porosity ceramic member was used as the gummed tape marketed, and also the honeycomb filter was manufactured like the example 1.

[0060] In this example 1 of a comparison, breakage and exfoliation were looked at by the part in the middle of manufacture of a honeycomb filter, and the gummed tape stuck on the both-ends side of a porosity ceramic member as the above-mentioned masking material was not able to cover completely the end face of the above-mentioned porosity ceramic member. Moreover, when the condition of the end face of the manufactured honeycomb filter was observed visually, the honeycomb filter which an adhesives paste and a sealing-compound paste invade into a part of through tube of a honeycomb filter, has the part which has started blinding, and is applied to this example 1 of a comparison was a thing inferior to the function as a filter.

[0061]

[Effect of the Invention] The manufacture approach of the honeycomb filter of this invention is as above-mentioned, since masking material has a moderate degree of hardness and moderate adhesiveness while it is excellent in thermal resistance, the masking material stuck on a part for the edge surface part of a honeycomb filter is in the middle of manufacture of a honeycomb filter, a part exfoliates, it does not damage or neither decomposition nor deterioration generates it. Therefore, the through tube of a honeycomb filter cannot start blinding and a honeycomb filter can be manufactured good.

[Translation done.]

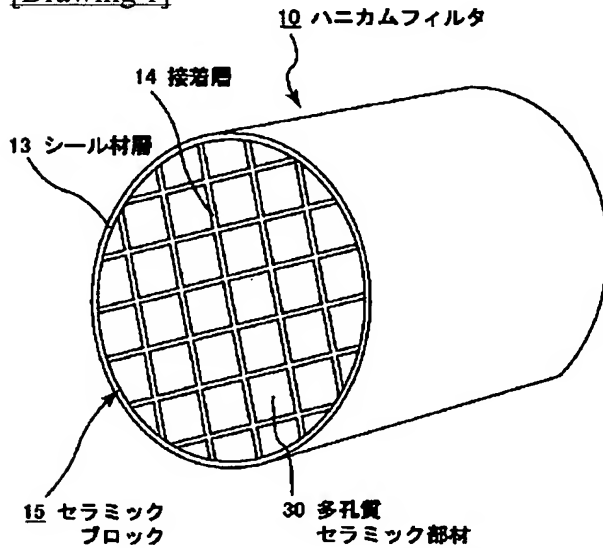
* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

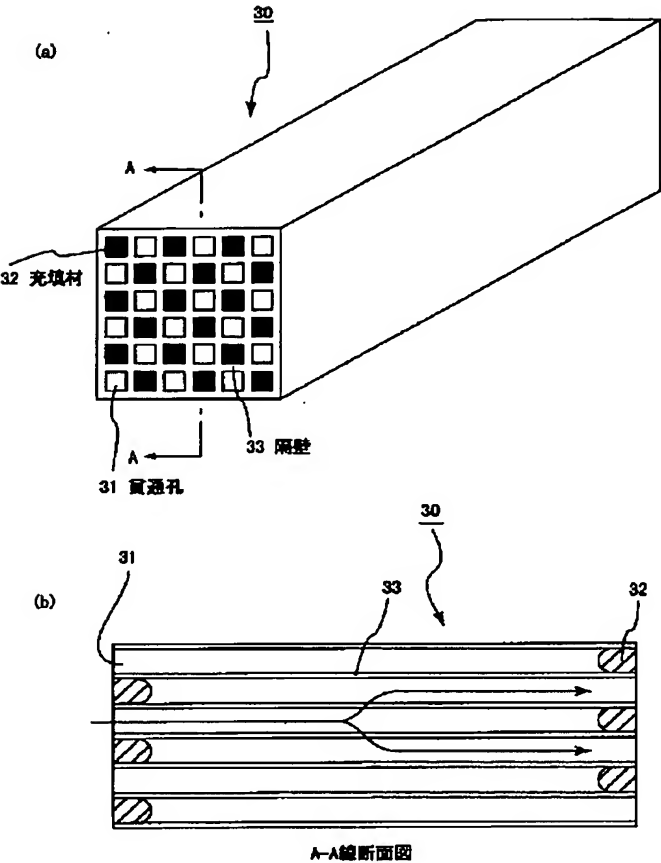
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

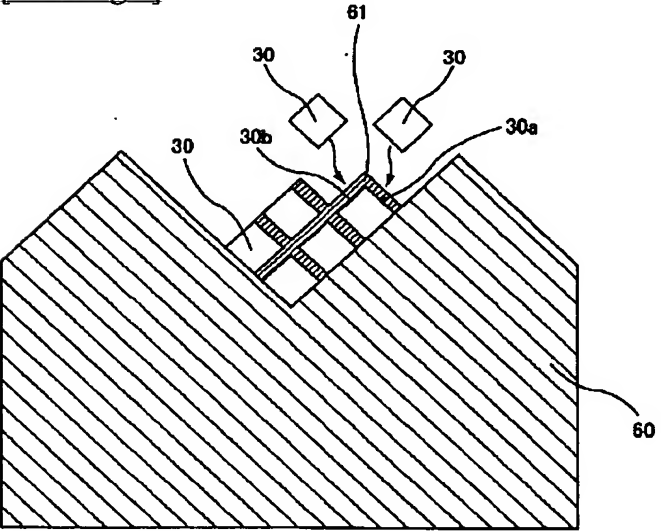
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Translation done.]